Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. - 98. (cancelled)

99. (currently amended) A method of manufacturing substrates with a vacuum plasma treated surface comprising the steps of

- providing a target with a target surface being circular about an axis;
- providing at least one substrate distant from and opposite said target surface having a substrate surface;
- generating in the volume between said target surface and said substrate surface a magnetic field pattern of
  a) a magnetron field pattern forming, considered in direction towards said target surface:
  a substantially circular closed loop eccentrically with respect to said axis and along said target surface, said substantially circular closed loop having a ~~radius-like~~ radial extension extending towards a center area of said substantially circular closed loop and considered parallel to said target surface, tunnel-like arcing from an outer area of first magnetic pole to an inner area of second magnetic pole, whereby said inner area is confined with respect to said outer area by a locus of zero component of magnetic field perpendicular to said

target surface, said locus being substantially circular and closed loop about said center area and having a respective ~~radius-like~~ radial extension extending towards said center area,

b) an unbalanced long-range field pattern which is asymmetrical generated by an additional magnetic flux along a distinct area of said outer area relative to magnetic flux along said inner area and relative to the remainder of said outer area; said distinct area extending along the periphery of said target surface thereby ~~sickle-like~~crescent shaped increasing said outer area; said long range field pattern reaching the substrate surface having a component of magnetic field parallel to said substrate of at least 0.1 Gauss,

- generating a plasma discharge in said magnetic field pattern;
- plasma treating said substrate surface, thereby
- sweeping said magnetic field pattern along said target surface, by rotational movement about said axis.

100. (previously presented) The method of claim 99, wherein said component of magnetic field parallel to said substrate surface is selected to be between 1 G and 20G.

101. (previously presented) The method of claim 99, further comprising covering with said tunnel-like magnetron field pattern more than 60% of said target surface.

102. (previously presented) The method of claim 99, thereby covering with said tunnel-like magnetron field pattern more than 85% of said target surface.

103. (previously presented) The method of claim 99, further comprising adjusting uniformity of ion current density at said substrate surface by adjusting said flux along said distinct area.

104. (previously presented) The method of claim 99, further comprising providing more than one substrate.

105. (previously presented) The method of claim 104, further comprising the step of selecting said more than one substrate to be arranged within a circular area, sweeping said unbalanced field pattern around a center axis of said circular area.

106. (previously presented) The method of claim 99, further comprising the step of selecting said substrate to be circular, sweeping said unbalanced field pattern around a center axis of said substrate.

107. (currently amended) A magnetron source comprising

- a target with a target surface and an opposite surface circular about an axis;
- a magnet arrangement adjacent said opposite surface and having:
    - a first magnet subarrangement;

- a second magnet subarrangement;
- said first magnet subarrangement having a radial extension extending towards a center of said loop and defining a first area pointing towards said opposite surface and of one magnetic polarity;
- said second magnet subarrangement ~~having~~ defining a second area pointing towards said opposite surface and of the other magnetic polarity;
- said first area forming a substantially circular loop along said opposite surface, eccentrically with respect to said axis ~~and having a radius like extension towards a center of said loop~~;
- said second area forming a closed loop inside, along and ~~distant~~ spaced from said first area;
- said first area generating a first magnetic flux through said target surface;
- said second area generating a second magnetic flux through said target surface;
- ~~comprising~~ a third magnet sub-arrangement opposite said opposite surface generating a third magnetic flux superimposed to said first magnetic flux through said target surface, thereby resulting in a resultant magnetic flux along a distinct, crescent shaped area which is larger than said first magnetic flux along the remainder of said first area, therby generating an unbalanced, asymmetric, long-range magnetic field, said

distinct, crescent shaped area ~~sickle-like~~ increasing the extent of said first area;

- a sweeping arrangement rotationally moving said first, second and ~~to~~ third magnet sub-arrangements about said axis.

108. (previously presented) A magnetron treatment chamber comprising a magnetron source as claimed in claim 107 and a substrate carrier remote from and opposite to the target surface of said magnetron source.

109. (previously presented) The chamber of claim 108, further comprising an anode arrangement adjacent said substrate carrier.

110. (previously presented) The chamber of claim 109, further comprising a shield confining a process area between said source and said substrate carrier and being electrically floating or on an anodic potential.

111. (previously presented) The chamber of claim 109, wherein said anode is hidden behind a shield arrangement and with respect to processing volume.

112. (previously presented) The chamber of claim 108, further comprising at least one coil with a coil axis perpendicular to the target surface of said source.

113. (previously presented) The chamber of claim 108, wherein said substrate carrier is electrically floating or connectable to a predetermined biasing potential.